Submission of Abstract on a Separate Sheet

ABSTRACT OF THE DISCLOSURE

The invention relates to the field of technical ceramics and specifically relates to a method of synthesis for aluminum oxides of different crystalline structure and to the products obtained by the method. The aim of the invention is to provide a method of producing redispersible nanoparticulate corundum and nanoporous Al_2O_3 sintered products, the method using precursors and being viable on a commercial scale. To this aim, inter alia, a method of producing redispersible nanoparticulate corundum of an average particle size of $D_{50} < 100$ nm is used which method includes the addition of crystal nuclei. According to the method, organic or chlorine-free inorganic precursors are dissolved or processed to a sol and hydrolyzed. The substance is then dried and calcinated at temperatures of between 350 and 650°C and is then further heated by increasing the temperature to ≤950°C. The aim of the invention is also attained by using a method of producing nanoporous Al_2O_3 sintered products according to which organic or chlorine-free inorganic precursors are dissolved or processed to a sol and hydrolyzed. The substance is then dried and calcinated at temperatures of between 350 and 750°C.